

REMARKS

By the foregoing Amendment, claims 1-18 have been canceled without prejudice or disclaimer, and new claims 19-21 have been added. In view of the foregoing amendments and following remarks, Applicants respectfully request that the Examiner reconsider all outstanding rejections, and that they be withdrawn.

Objection to the Drawings

At paragraph 2 of the Office Action, the Examiner objected to the drawings. By the amendment above, the Examiner's objection is now rendered moot.

Rejections Under 35 U.S.C. §102

At paragraphs 4-5 of the Office Action, the Examiner rejected claims 1 and 9 as being anticipated by U.S. Patent No. 4,896,287 to O'Donnell et al. ("O'Donnell"). By the amendment above, the rejection of claims 1 and 9 is now rendered moot.

Rejections Under 35 U.S.C. §103

At paragraphs 7-8 of the Office Action, the Examiner rejected claims 2 and 10 as being unpatentable over O'Donnell in view of Re 33,629 to Palmer et al. ("Palmer"). By the amendment above, the rejection of claims 2 and 10 is now rendered moot.

At paragraphs 9-10 of the Office Action, the Examiner rejected claims 3, 4, 11, and 12 as being unpatentable over O'Donnell in view of Palmer and further in view of U.S. Patent No. 5,963,157 to Smith. By the amendment above, the rejection of claims 3, 4, 11, and 12 is now rendered moot.

New Claims 19-21

New claims 19-21 recite a system and method that includes the combination of stochastic rounding and dithering as applied to a phase rotator. In new claims 19-21, Applicant has sought to clarify the invention by identifying the different functions and implementations of the stochastic rounding and dithering aspects of the invention. In particular, it should be noted that the stochastic rounding apparatus is designed to reduce error due to truncation of a result of higher precision arithmetic, for example, when 14-bit precision results are truncated to 10-bit precision results for use at a later stage of processing. In this example, the four least significant bits of the 14-bit precision results would be truncated to produce the 10-bit precision truncated result. To reduce the error due to truncation, a 4-bit randomly generated signal is added to the four truncated bits, with the carry bit being applied to the 10-bit truncated result.

In contrast, the dithering apparatus of Applicant's invention is designed to eliminate harmonics caused by digital to analog converter non-linearity. In this process, a single randomly generated bit can be filtered, then applied to the stochastically rounded signal. As would be appreciated, this process does not involve the combination of randomly-generated signals with truncated bits. Rather, the single randomly-generated bit is added to the input signal directly.

Conclusion

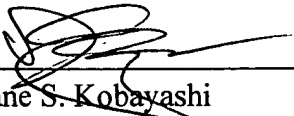
All of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicants therefore respectfully request that the Examiner reconsider all presently outstanding rejections, and that they be withdrawn. The Examiner is invited to telephone the undersigned representative if an interview might be useful for any reason.

Respectfully submitted,

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